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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,762	10/22/2003	Nitzan Peleg	200308558-1	5363

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EXAMINER

TIMBLIN, ROBERT M

ART UNIT PAPER NUMBER

2167

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/690,762	Applicant(s) PELEG ET AL.	
	Examiner Robert M. Timblin	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/31/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/31/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is responsive to application 10/690,762 filed 10/22/2003 and applicant's remarks/amendments filed 7/31/2006.

Claims 1-30 have been examined and are pending prosecution.

Response to arguments found on page 7.

Drawings

The corrected drawings submitted 7/31/2006 have been accepted by the examiner.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-4 are rejected under 35 U.S.C. 101 because of lacking utility. Specifically, no implementation of computer hardware is found in these claims. The lack of computer hardware renders claims 1-4 as being software per se and therefore is nonfunctional descriptive material.

With respect to claim Claims 27-30: the claims as amended recite a computer readable medium. The computer readable medium is not explicitly defined in the specification. The Examiner interprets a computer readable medium as recited by the

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claim to mean a volatile or nonvolatile medium able to be read by a computer (i.e. a hardware disk) since it comprises code.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over by **Sun et al.** (Sun hereinafter) (U.S. 5,963,959) in view of Witkowski et al. ('Witkowski' hereinafter) (U.S. Patent 6,125,360).

With respect to claims 1, 5, 10, 19, 24, 28, **Sun** discloses A system that allows a table and a materialized view to be available while the materialized view is being refreshed, the system comprising:

'a materialized view (snapshot) that is derived at least in part from a table (master table)' as a snapshot that references a master table (col. 2, lines 24-27). Furthermore, snapshot 400 is derived from master table 200 (col. 5 line 35-36).

'a refresh log (master log) that contains a plurality of entries (210, 402, and 600), each of the plurality of entries corresponding to a change in the table (master table)' as a master log (drawing references 210, 402, and 600) contains the primary keys corresponding to changes in the master table.

‘(b) identifying a second subset of the plurality of entries from within the first subset of the plurality of entries, the second subset of the plurality of entries falling within a primary key value boundary’ as selecting primary key values PK1=: and ... PKn=:n (col. 5, lines 46-62).

‘(c) applying the second subset of the plurality of entries to the materialized view (snapshot)’ as applying the appropriate refreshed rows to the snapshot table (col. 1, lines 35-40, and col. 5, lines 63-67 and col. 5 lines 45-50).

Sun fails to expressly disclose each of the plurality of entries comprising an epoch identifier and the step of successively reading a first subset of the plurality of entries indicated by a specific epoch identifier from the refresh log.

Witkowski, however, teaches **each of the plurality of entries comprising an epoch identifier’** as an SCN (System Change Number). Each change is associated with the SCN that performed the change (col. 9 lines 17-23).

Witkowski also teaches the step of **successively reading a first subset of the plurality of entries indicated by a specific epoch identifier from the refresh log** as the database query found in column 9 lines 55-60) for determining how a materialized view should be updated in response to updates made in the base table (Witkowski, col. 4 line 25-30). That is, the SCNs from the time of the last refresh to current are selected.

It would have been obvious to one of ordinary skill in the data processing art at the time of the present invention to combine the teachings of the cited references because the teachings of Witkowski would have provided Sun’s system with determining how a materialized view should be updated in response to updates made in

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the base table (Witkowski, col. 4 line 25-30). Such teachings would aid and make more efficient the detection of changes made to a table (Sun, col. 2 line 26-28).

With respect to claims 2, 7, 11, 20, 25, and 29, **Witkowski** discloses **'the corresponding epoch identifiers represent epoch numbers that have been created since a previous refresh operation on the materialized view'** as an SCN (col. 9 lines 17-23).

With respect to claims 3, 6, 12, and 17, **Sun** discloses **'the second subset of the plurality of entries is applied to the materialized view in a primary key order'** as differences between snapshot and master table are reconciled based on primary key values (col. 2 lines 45-56).

With respect to claims 4, 8, 15, 22, 26, 30, **Witkowski** discloses **'the refresh manager is adapted to distinguish between entries of the second subset of the plurality of entries that have already been applied to the materialized view in previous transactions and entries of the second subset of the plurality of entries that have not been applied to the materialized view in the event of a failure of the refresh operation'** as only changes since the last refresh are transferred (col. 1 lines 28-44).

With respect to claims 9, 16, 23, and 27, **Sun** discloses A system that provides availability of a table and a materialized view while the materialized view is being

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refreshed, the table being derived at least in part from the materialized view, the system comprising:

a refresh log that contains a plurality of entries wherein the plurality of entries comprise data that is being refreshed as a master log (col. 1, lines 30-37 and col. 2 lines 45-55). Furthermore, default values in the master log are reset in response to a refresh command (col. 2 line 50-53).

'a refresh manager that computes a table delta based on the refresh log and applies the table delta to the materialized view' as in response to the refresh command, a refresh timestamp is generating and modification timestamps are reset (col. 2, lines 45-54).

Sun fails to expressly disclose a refresh a refresh manager that computes a table delta based on the refresh log and applies the table delta to the materialized view

Witkowski, however, discloses **a refresh manager that computes a table delta based on the refresh log and applies the table delta to the materialized view** as a delta table for the rows in the table (col. 9 , lines 12-14 and 40-67).

It would have been obvious to one of ordinary skill in the data processing art at the time of the present invention to combine the teachings of the cited references because the teachings of Witkowski would have provided Sun's system with determining how a materialized view should be updated in response to updates made in the base table (Witkowski, col. 4 line 25-30). Such teachings would aid and make more efficient the detection of changes made to a table (Sun, col. 2 line 26-28).

With respect to claims 13 and 18, **Sun** discloses **'the table delta is used to refresh the materialized view in multiple transactions'** as refresh timestamp is generated and modification timestamps are reset (col. 2 lines 49-51).

With respect to claims 14 and 21, **Sun** discloses **'recording the primary key value for each entry from the update log after that entry is applied to the materialized view'** as recording the primary key in a master log (col. 2. lines 30-33).

Response to Arguments

Applicant's arguments with respect to claims 1, 5, 9, 16, 23, and 27, see pages 13-17 filed 7/31/2006, with respect to the rejection(s) of claim(s) 1-30 under 35 U.S.C. 102 (b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a new interpretation of the Sun reference and further in view of the newly cited Witkowski reference.

With respect to claims 1 and 5, the applicant pointed out inconsistency with the mapping of the Sun reference to the present application. The Examiner has reconciled these inconsistencies. In the Office Action of 4/27/2006, the Examiner referenced 'a refresh log' as a snapshot log from the Sun reference. Upon further consideration, the Sun reference teaches this limitation as a master log. The rational is found in the rejections of claims 1 and 5.

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The Examiner believes the Sun reference fails to teach the 'epoch identifier from the refresh log' of claims 1 and 5. However, the newly cited Witkowski reference teaches this limitation (see rejection of claims 1 and 5 above).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M. Timblin whose telephone number is 571-272-5627. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leslie Wong



Primary Examiner

RMT
9/25/2006

Robert M. Timblin



Patent Examiner AU 2167